Calorimetric and PVT Measurements of {n-Hexane+1-Hexanol} up to 473 K and 20 MPa

J.Y. Coxam [C, S]
Laboratoire de Thermodynamique des Solutions et des Polymères, Université Blaise Pascal, Aubière, France

H. Ogawa
School of Sciences and Engineering Department of Natural Sciences, Laboratory of chemistry, Tokyo Denky University, Hiki-gun Saitama, Japan

J-P.E. Grolier
Laboratoire de Thermodynamique des Solutions et des Polymères, Université Blaise Pascal, Aubière, France

The binary {n-hexane + 1-hexanol} may be considered as a model system to study association phenomena in a binary mixture of two homomorph components having the same number of carbon atoms. The system has been studied at atmospheric pressure in a narrow temperature range by Roux et al [1]. The experimental data has been extended to high pressures and high temperatures by Grolier et al [2-3] by measurements of isobaric thermal expansivities from 303 K to 503 K and pressures up to 400 MPa. From these data, excess enthalpies, heat capacities and specific volumes have been estimated, using the saturation curve data as a reference. In this work, the excess enthalpies HE and heat capacities cp have been determined from direct experimental measurements over the temperature range 323 K to 473 K and in the pressure range from 5 MPa to 20 MPa. The measurements have been carried out using differential heat flux calorimetric techniques developed in our laboratory [4-5]. The excess volumes VE were measured at temperatures from 303 K to 423 K and pressures from 5 to 20 MPa. The aim of the present work is to compare the HE, cp and VE data estimated from expansivities with the data obtained by direct experimental measurements. Results obtained previously combined with experimental results provide a wealth of calorimetric and PVT data over extended ranges of temperature and pressures for the model system considered. Finally, our experimental excess enthalpies HE have been compared with the predicted values obtained using the DISQUAC model.

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